

undistinguished from *Aserica orientalis*, Mots. It is undoubtedly less closely related to the type-species of *Serica* (*S. brunnea* L.) than to those of *Aserica* (*A. secreta* Brsk.) and *Autoserica* (*A. piccorufa* Fairm.) and a study of the multitudinous species of the group may show that it is not possible to separate it ultimately from *Aserica*.

THE IDENTITY AND SYNONYMY OF THREE ORIENTAL SPECIES OF CREMASTUS (HYM., ICHNEUMONIDAE).

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The importation into the United States of *Cremastus flavoorbitalis* (Cameron) from Japan as a parasite of the European corn borer, *Pyrausta nubilalis* Hübner, has led to a study of its identity. In the course of this study it has become evident that there has been much confusion on the part of Japanese authors between this species and two other species, *japonicus* (Ashmead) and *chinensis* (Viereck).

This paper is the result of the study of types and published discussions.

Cremastus flavoorbitalis (Cameron) (new combination).

Tarytia flavoorbitalis Cameron, Journ. Bombay Nat. Hist. Soc., 1907, p. 589.

Ophionellus biguttulus (Matsumura) Munakata, Extra Rept. Agr. Sta. Aomori No. 2, 1910, p. 67, Pl. 2, fig. 1 (in Japanese) (new synonymy).

Cremastus hymeniae Viereck, Proc. U. S. Nat. Mus., vol. 40, 1911, p. 189 (new synonymy).

Tarytia flavoorbitalis Morley, Fauna Brit. India; Hym., vol. 3, Ichn. pt. 1, 1913, p. 506.

Cremastus hymeniae Swezey, Proc. Hawaiian Ent. Soc., vol. 3, 1915, p. 106.

Ophionellus biguttulus Nawa, Ins. World, Gifu, Japan, vol. 19, 1915, p. 456; Kondo, Extra Rept. Agr. Sta. Nagasaki, No. 15, 1917, p. 101.

Cremastus hymeniae Swezey, Proc. Hawaiian Ent. Soc., vol. 4, 1918, p. 13.

Diaparsis japonica (Ashmead) Uchida, Journ. Faculty Agr. Hokkaido Imp. Univ., vol. 21, 1928, p. 285, Pl. 6, fig. 28 (not *Temelucha japonica* Ashmead).

Cremastus hymeniae Rust, Proc. Hawaiian Ent. Soc., vol. 7, 1929, p. 223.

Cremastus japonica Uchida, Journ. Faculty Agr. Hokkaido Imp. Univ., vol. 25, 1930, p. 356 (not *Temelucha japonica* Ashmead).

Cremastus (*Tarytia*) *biguttulus* Sonan, Trans. Nat. Hist. Soc. Formosa, vol. 20, 1930, p. 141 (part).

In the last reference cited above Sonan synonymized *Cremastidea chinensis* Viereck and *Cremastus japonica* Uchida (not Ashmead) with *biguttulus* Munakata, a species originally described in Japanese. In the case of *japonica* Uchida he appears to be correct, but *chinensis* is a distinct species, as is also the true *Cremastus japonicus* (Ashmead).

The types of *chineusis*, *japonicus*, and *hymeniae* are all before me. They are separable by structural characters as follows:

1. Lower margins of first tergite not nearly meeting ventrally but widely separated and parallel; stigma broad with radius distinctly beyond middle(*hymeniae* Viereck) = *flavoorbitalis* (Cameron).
Lower margins of first tergite nearly or quite meeting ventrally; stigma narrow with radius at or very near middle 2.
2. Abdomen narrow, second tergite fully five times as long as broad at base; areola barely one and a half times as long as broad; in female, diameter of an ocellus shorter than ocell-ocular line and malar space nearly as long as basal width of mandible (male unknown)
japonicus (Ashmead).
Abdomen broad, second tergite less than four times as long as broad at base; areola two or more times as long as broad; in female, diameter of an ocellus much longer than ocell-ocular line and malar space barely half as long as basal width of mandible; in male, eyes and ocelli very large, malar space and ocell-ocular line nearly obliterated*chineusis* Viereck.

Cremaustus flavoorbitalis (Cameron) is very widely distributed through the Oriental and Australian Regions and spreads into the Palearctic Region in eastern Asia as far north as the Island of Honshu, Japan, east to the Hawaiian Islands and west to Ceylon and India.

The National Collection includes specimens from Japan reared from *Pyrausta nubilalis* Hübner and *Grapholitha molesta* Busck; from Hawaii reared from *Hymenia fascialis* Cramer and *H. recurvalis* Fabricius (types of *hymeniae*); from the Philippine Islands, including two reared from *Crocidolomia binotalis* Zeller at Los Baños by V. J. Madrid under College of Agriculture No. Ec-388; and a series from Singapore in the Baker Collection.

The species exhibits very marked variation in color, especially of the thorax, which is sometimes largely black above and sometimes entirely without black.

Cremaustus japonicus (Ashmead).

Temelucha japonica Ashmead, Proc. U. S. Nat. Mus., vol. 30, 1906, p. 185.

Since the publication of Ashmead's description there have been four references to the name, all by Japanese authors. In 1915 Nawa (Insect World, vol. 19, p. 489, Pl. 23) recorded it as a parasite of a rice insect, *Bradina admixtalis* Walker; in 1928 Uchida (Journ. Faculty Agr. Hokkaido Imp. Univ., vol. 21, p. 285) transferred the name to *Diaparsis* and recorded it as a parasite of another rice insect, *Chilo simplex* Butler; in 1930 Uchida (I. c. vol. 25, 1930, p. 356) transferred it to *Cremaustus*; and in 1930 Sonan (Trans. Nat. Hist. Soc. Formosa,

vol. 20, p. 141) synonymized *Cremastus japonica* Uchida (not Ashmead) with *Cremastus (Tarytia) biguttulus* (Munakata).

In the National Collection under the name *Temelucha japonica* Ashmead stand two female specimens, one labelled "Type No. 7260" and the other "Paratype No. 7260." The former is from Swatow, China, the first locality mentioned in the description. The other is from Hong Kong. There is no specimen from Japan. The Swatow specimen agrees perfectly with the original description, while the Hong Kong specimen is not the same species but is *Cremastus flavoorbitalis* (Cameron). Since there is no specimen from Japan, since the Swatow specimen is labelled "Type" and since this specimen is the only one that agrees with the original description, it is obvious that it must be recognized as the holotype and Swatow, China, as the type-locality.

Apparently all of the references subsequent to the original description should be considered as applying to *Cremastus flavoorbitalis* (Cameron).

Cremastus chinensis (Viereck).

Cremastus (Cremastidea) chinensis Viereck, Proc. U. S. Nat. Mus., vol. 43, 1912, p. 587.

Cremastidea chinensis Rust, Proc. Haw. Ent. Soc., vol. 7, 1929, p. 223.

Cremastus chinensis Cushman, Proc. U. S. Nat. Mus., vol. 75, art. 25, 1930, p. 14.

Cremastus (Tarytia) biguttulus Sonan, Trans. Nat. Hist. Soc. Formosa, vol. 20, 1930, p. 141 (part).

This species is mentioned here only to call attention to the fact that it is not synonymous with *biguttulus* (Munakata) as has been indicated by Sonan.

It is parasitic on the rice borer, *Chilo simplex* Butler, as indicated by a series of specimens reared from that host by D. T. Fullaway at Kobe, Japan, and by others reared from rice straw from Japan intercepted at quarantine in New York and New Orleans.

TWO NEW SPECIES OF TABANUS FROM NORTH AMERICA (DIPTERA).

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During the course of a study of the nearctic species of *Tabanus* two unusually distinct new species have been discovered. It was not originally intended to describe these before the completion of the study, but since a name was requested for the one from Oklahoma and since the other was so distinct, it was thought advisable to describe them immediately.